



A Study of phytochemical examination of (Solanum nigrum Leaves.)

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Abstract :-

The leaves of Solanum nigrum were extracted in different solvents and tests for phytochemical were carried out. Water extracts show presence of alkaloids, and terpenes whereas ether extract contains saponins, terpenes and tannin. The leaves powder shows different fluorescent color with different reagents.

Key words :- Solanum nigrum, fluorescent test, TLC, Water Extract, Ether Extract.

INTRODUCTION:- The use of herbal drugs has been very minimal for reasons viz., less availability of herbs, high prices of medicinal plants and lack of technology for commercial cultivation. However, the indiscriminate use of antibiotics and dependence on synthetics has reached a point of saturation and people prefer to use natural pharmaceuticals with a hope to surmount antibiotic resistance developed by pathogenic microbes (1-3). Solanum nigrum is a glabrous climbing succulent shrub, commonly found in hedges. It is native to India, thrives easily in the tropical region. It also occurs in Burma and Ceylon. It is widely used in Ayurvedic medicine in India as tonic, vitalizer and as remedy for diabetes mellitus and metabolic (4-5). Seizure refers to a transient alteration of behaviour due to disordered, synchronous and rhythmic firing of populations of brain neurons. Epilepsy is a disorder of brain function characterized by periodic and unpredictable occurrence of seizures. Seizures can be “non-epileptic” when evoked in a normal brain by treatment such as electric shock or chemical convulsants or “epileptic” when occurring without evident provocation. Modern drug therapy of epilepsy is complicated by the inability of drugs to control seizure in some patients and side effects that range in severity from minimal impairment of the central nervous system (CNS) to death from aplastic anaemia or hepatic failure. (6). Our search for bioactive compounds among solanaceous plants has resulted in the isolation of cytotoxic and anti-herpes 31 steroidal saponins. In order to obtain new



cytotoxic and anti-herpes steroidal saponins, and to study the relationship between the structure and bioactivity, we investigated steroidal saponins from the whole plant of *Solanum nigrum* (7). The importance of *Solanum* L. section *Solanum* species in Africa cannot be overestimated. Species in this section constitute one of the largest groups of leafy vegetables, and are an important source of income for “Mnafu” (the Swahili name for section *Solanum* species) growers in both rural and urban areas (Edmonds and Chweya 1997, Schippers 2000, Manoko and van der Weerden 2004). Furthermore, in Africa, where about 80% of people still live in rural areas, section *Solanum* species are used in traditional medicine, the sole source of primary health care in these areas. The section is one of the largest and most variable species groups of the genus with its greatest diversity in the New World tropics (Edmonds and Chweya 1997) (8). Solanaceae family comprises a number of plants widely known for the presence of variety of natural products of medicinal significance mainly steroidal lactones, glycosides, alkaloids and flavanoids. *Solanum nigrum*. (Black night shade) a member of the Solanaceae, has a wide range of medicinal values. The herb is antiseptic, antidysenteric and antidiuretic used in the treatment of cardiac, skin disease, psoriasis, herpesvirus and inflammation of kidney. The root bark is laxative, useful in the treatment of ulcers on the neck, burning of throat, inflammation of liver and chronic fever. Berries are bitter and pungent useful in the heart disease, piles, dysentery (Kritikar and Basu, 1935). (9) The genus *Solanum* L. comprises a wide range of economically important crop plants like potato (*Solanum tuberosum* L.), eggplant (*Solanum melongena* L.) and tomato (*Solanum lycopersicum* L.). Beside these major crops, the genus also contains many minor food plants like species of *Solanum* sect. *Solanum*, or black nightshades. They are known as poisonous weeds in many parts of the world, while in others they are used as valuable leafy vegetables. Because of this ‘poisonous reputation’, edible species of the group carry a negative disgrace, and thus are neglected or underutilized in Europe. Black nightshades serve as emerging food sources in Africa, but some varieties are cultivated elsewhere. However, no cultivars have yet been developed using traditional plant breeding techniques. (10)

MATERIAL AND METHOD:- Fresh healthy leaves and stem of *Solanum Nigrum* were collected from Hudco Corner, Rojabag, Aurangabad. They were washed thoroughly with distilled



water and dried in shade for seven day followed by grinding to coarse powder stored of the same size and stored in air tight bottles.

Total ash:- About 10 g of powdered leaves was accurately weighed and taken in a silica crucible, which was previously ignited and weighed. The powder was spread as a fine, even layer on the bottom of the crucible. The crucible was incinerated gradually by increasing temperature to make it dull red hot until free from carbon. The crucible was cooled and weighed. The procedure was repeated to get constant weight.

Acid insoluble ash:- The ash obtained as described above was boiled With 25 ml of 2N HCl for five minutes. The insoluble ash was collected on an ash less filter paper and washed with hot water. The insoluble ash was transferred into a silica crucible, ignited and weighed. The procedure was repeated to get a constant weight

Water soluble ash:- The ash obtained as described in e determination of total ash was boiled for 5 minutes with 25 ml of water. The insoluble matter was collected on ash less filter paper and washed with hot water. The insoluble ash was transferred into silica crucible, ignited for 15 minutes, and weighed. The procedure was repeated to get a constant weight. The weight of insoluble matter was subtracted from the weight of the total ash. The difference of weight was considered as water-soluble ash The result of total ash, acid insoluble ash, water soluble ash and other physical parameters of Solanum Nigrum leaves are summarized in table 1.

Antimicrobial activity:- antimicrobial solanum nigram activity determined agaisnt bacterial strain, samonella typins Esherichia coil ,staphy lococcus acereus bacillus subfills by well diffused assay on agar plate. The bacterial culiure were grown on nuetrient broth for 24 hrs the activity grown cullirs were spread plate method well was preperad by bores 20 ul sample was poured in the well streptomycuine antibiotic is used as standred (100mg 1ml conc)

WATER EXTRACTION:- 10 gm of sample (Solanum Nigrum plant) was taken in round bottom flask. 35ml of distilled water was added. water condenser was arranged. Refluxed for 3 hrs after complite heating cooled the water extract. solution was filtrated throught whatman paper No. 41residue was dried and weight was took and water soluble compound was calculated.



ETHER EXTRACTION:- 10 gm of leaves sample was taken Solanum Nigrum (10 gm each) was extracted using Round bottom flask, soxhlet apparatus was arranged. The extracts were dried to yield crude residue. The extracts were auto-calved and stored at 4⁰c until further use. ether soluble compound was calculated.

RESULT AND DISCUSSION:-solanum nigrum leaf extract exhibited maximum antibacterial activity against the selected strains ,hence the tested silvent extracts must analysed furter by purification and charactrization of the active compounds that may serve as leads for the development of novel pharmaceutical

Table No. 1 Percentage of Ash

Sr. No.	Sample (ash)	Percentage
1	Total Ash	12.85%
2	Water Soluble	24.71%
3	Acid InSoluble	76.54%

Table No. 2 Percentage of Extraction

Sr. No.	Extraction	Percentage
1.	H ₂ O Extraction	50.01%
2.	Ether Extraction	7.04%

Table No. 3 Colour Test of Sample

Sr. No.	Colour Test	Colour
1	Powder as Sample	Green
2	Powder +1N NaOH	Dark green
3	Powder +1N HCl	Light red
4	Powder + 5% KOH	Yellowish dark green
5	Powder + 50% H ₂ SO ₄	Dark green
6	Powder + 50% HNO ₃	Pale Yellow

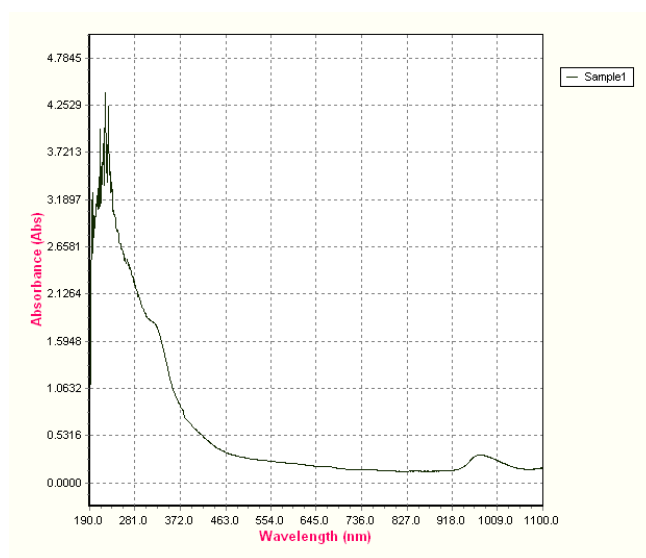


7	Powder + Conc. HNO ₃	Orange
8	Powder + Acetic Acid	Green fluorescent
9	Powder + Conc. H ₂ SO ₄	Blackish green
10	Powder + Picric Acid	Yellowish green Fluorescent
11	Powder + Conc. HCl	Light green

Table No. 4 Phytochemical Test

Sr. No.	Phytochemical Test	Water Extraction	Ether Extraction
1.	Alkaloied	+ve	-ve
2.	Saponins	-ve	+ve
3.	Fluonaid	-ve	-ve
4.	Terepens	+ve	+ve
5.	Tannins	-ve	+ve

SPECTRA OF WATER EXTRACT:



It shows $\lambda^{\max} = 222 \text{ nm}$



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